

REMARKS

Claims 32 and 34-40 are pending in this application. Claims 32, 34, and 36-40 have been amended to define more clearly what Applicant regards as the invention.

Claim 33 has been canceled, without prejudice or disclaimer of subject matter. Claims 32 and 36-40 are in independent form. Favorable reconsideration is requested,

Claims 32 and 34-40 were rejected under 35 U.S.C. 103(a) as being obvious from U.S. Patent No. 5,818,970 (*Ishikawa*) in view of U.S. Patent No. 6,806,973 (*Muto*); and Claim 33, as being obvious from *Ishikawa* in view of *Muto* and in further view of U.S. Patent No. 6,426,809 (*Hayashi*).

First, cancellation of Claim 33 renders the rejection of that claim moot.

The present invention is intended to easily add transmission information for a page header or page footer to a transmitted JPEG image in a color facsimile apparatus transmitting a color image.

Claim 32 is directed to a color facsimile apparatus, including reading means, generating means, buffering means, extracting means, overwriting means, compressing means, storing means, and transmitting means. The reading means line-sequentially scans an original document in a main scanning direction with moving the original document in a sub scanning direction. The generating means generates image data representing the original document, and the buffering means stores the image data generated by the generating means in a buffer. The extracting means extracts, as a minimum processing unit for JPEG compression processing, image data equivalent to one line in the main scanning direction of the original document from the buffer.

The overwriting means overwrites transmission information of image data for a page header or page footer in the unit of extracted image data extracted by the extracting means when the unit of the extracted image data is a unit of the extracted image data in which the transmission information should be overwritten. The compressing means executes JPEG compression processing for each unit of the extracted image data including the unit of the extracted image data in which the transmission information is overwritten after overwriting the transmission information by the overwriting means. The storing means stores compressed data by the compressing means in a memory, and the transmitting means transmits a JPEG image data based on the compressed data stored in the memory. The JPEG image data includes the compressed data of the transmission information. See the present specification at, for example, page 23, line 16, to page 23, line 12.^{1/}

Among other notable features of Claim 32, an original document is line-sequentially scanned in a main scanning direction with moving the original document in a sub scanning direction, and scanned one line image data as a minimum processing unit for JPEG compression processing replaces the transmission information by overwriting the transmission information in the scanned one line image data. After the overwriting, the transmission information and scanned image data are compressed by JPEG compression and the compressed data is transmitted.

In general, a monochrome facsimile apparatus executes the following steps when adding transmission information for a header or footer to scanned image:

^{1/}It is of course to be understood that the references to various portions of the present application are by way of illustration and example only, and that the claims are not limited by the details shown in the portions referred to.

- a. scanning an original document;
- b. compressing scanned image data;
- c. storing the compressed data in a memory;
- d. decompressing the compressed data before transmitting;
- e. adding the transmission information to the decompressed data;
- f. recompressing the decompressed data to which the transmission information is added according to an encoding scheme of a facsimile apparatus at the receiving end; and
- g. transmitting the recompressed data.

With regard to a monochrome facsimile apparatus, a plurality types of encoding schemes are defined, such as MH, MR and MMR. The encoding scheme on transmitting are determined by negotiation between the transmitting end and the receiving end. Therefore, it is necessary to repeat compression and decompression such as the above b to f.

With regard to a color facsimile apparatus, ITU-T Recommendation recommends using the JPEG standard as the encoding scheme on transmitting. Therefore, it is not necessary to negotiate the encoding scheme between the transmitting end and the receiving end and to repeat compression and decompression such as the monochrome facsimile apparatus. An amount of color image data is larger than that of monochrome image data. If compression and decompression of color image data are repeated, processing takes time.

By virtue of the features of Claim 32, the color facsimile apparatus overwrites the transmission information in scanned image data when the scanned image data is compressed by JPEG compression. Since the transmission information is compressed by JPEG compression at the time of JPEG compression for the scanned image data, processing time for making a JPEG file to be transmitted can be made shorter.

Moreover, among the notable features of Claim 32 is to extract image data equivalent to one line in a main scanning direction of an original document as a minimum processing unit for JPEG compression and to overwrite the extracted image data with the transmission information of image data. The minimum processing unit as recited in Claim 32 will be now be explained.

In JPEG compression, the MCU (Minimum Coded Unit) is defined according to subsampling. In the color facsimile apparatus of Claim 32, image data equivalent to one line in the main scanning direction of the original document is defined as the MCU (one MCU line). The one MCU line is a processing unit for JPEG compression, and a part of scanned image data to be transmitted is replaced with the transmission information; thereby, not only the scanned image data but also the transmission information are compressed by JPEG compression when compressing the scanned image data. Therefore, the transmission information which is added to the scanned image data by overwriting the transmission information in partial scanned image data is compressed and transmitted as image data. At the receiving end, the transmission information is printed out as a part of an image of the original document.

To establish a *prima facie* case of obviousness, three basic criteria must be

met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. M.P.E.P. § 2143.

The general nature of *Ishikawa* has been discussed adequately in previous papers, and it is not believed to be necessary to repeat that discussion. *Ishikawa* discusses encoding a composite image of a natural image and a character/line image. When the composite image is compressed and decompressed, ringing noise may be generated in boundary portions between the natural image and the character/line image, thereby debasing the quality of the character/line image. *Ishikawa* intends to maintain high quality of the character/line image.

Applicant notes that the line image in *Ishikawa* is not image data but is an “image” in the composite image. Figs. 33-36 of *Ishikawa* show pixels comprising the line image. According to *Ishikawa*, color information is generated for each pixel. Since the line image in the composite image has continuity, the color information has a header representing a change of color for an adjacent pixel. The header is shown in Figs. 18A and 18B.

The header is not an image data but is a flag representing a change of color of adjacent pixels. On the other hand, a “header” as recited in Claim 32 is transmission information and is an image data replaced with a part of scanned image data to be

transmitted. The meaning of “header” in *Ishikawa* is different from that of “header” in Claim 32.

Muto, as understood by Applicant, relates to an image transmitting apparatus and image forming apparatus. *Muto* discusses adding receiving party name image data to the top of an original document image data in a monochrome facsimile apparatus. However, it is not clear how to add the receiving party name image data to the top of an original document image data. Thus, *Muto* does not teach or suggest adding transmission information to an original document image by overwriting the transmission information in a part of the original document image. Additionally, *Muto* does not teach or suggest compression of scanned image data and transmission information such as in the color facsimile apparatus of Claim 32, nor does *Muto* relate to a color facsimile apparatus.

As mentioned above, the header in *Ishikawa* is a flag representing a change of color of adjacent pixels. On the other hand, a header in *Muto* is transmission information. The meaning of “header” in *Ishikawa* is different from that of the “header” in *Muto*.

Nothing in *Ishikawa* or *Muto*, whether considered either separately or in any permissible combination (if any) would teach or suggest a color facsimile apparatus which (1) line-sequentially scans an original document in a main scanning direction with moving the original document in a sub scanning direction, (2) extracts, as a minimum processing unit for JPEG compression processing, image data equivalent to one line in the main scanning direction of the original document from the buffer, (3) overwrites transmission information of image data for a page header or page footer in the unit of extracted image

data when the unit of the extracted image data is a unit of the extracted image data in which the transmission information should be overwritten, and (4) executes JPEG compression processing for each unit of the extracted image data including the unit of the extracted image data in which the transmission information is overwritten after overwriting the transmission information.

Accordingly, Claim 32 is believed to be patentable over *Ishikawa* and *Muto*, whether considered separately or in any permissible combination (if any).

Independent Claims 36-40 recite features similar in many relevant respects to those discussed above with respect to Claim 32 and therefore are also believed to be patentable over *Ishikawa* and *Muto* for at least the reasons discussed above.

A review of the other art of record, including *Hayashi*, has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from Claim 32 discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

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